In the Specification:

Please add a paragraph to the specification before paragraph [0001] as follows.

The present application is related to pending U.S. Application 10/807,890.

Please amend paragraph [0011] as follows:

In a third prior art, shown in FIG._1C, vertically oriented and mono-dispersed CNT is grown before gate fabrication and the gate aperture is self-aligned with a diameter of at least 2 micrometers. The spacing between CNTs has to be controlled to at least 5 micrometers so that there will be only one CNT in each gate hole. To achieve such a growth, e-beam lithography [has to be] was used to pattern the catalyst into an array of dots with desirable spacing and dot size, even though the fabrication of a self-aligned gate aperture does not require lithography.

Please amend paragraph [0034] as follows:

In accordance with the current invention, the gate aperture will always be perfectly aligned with the emitter, and the distance between aperture and its emitter will be substantially the same over the entire substrate surface, on the order of 100_nm, and controllable by the thickness of the gate insulator. And, all the emitters have substantially the same length and diameter. A gated field emission electron source with these characteristics [warrantee]provides an extra low voltage modulation, uniform emission over large area, and low energy loss from gate current. Since the emitter is largely embedded in a dielectric, it is mechanically and chemically protected and, to some extent, shielded from ion bombardment, giving rise to a longer lifetime and steadier electron emission. With a proper selection, the embedding material can also enhance the thermal conduction from the emitter. When a dielectric is used as the embedding material, the relatively large gap between the cathode and the gate electrodes also reduces the occurrence of a short circuit between them and the capacitive energy consumption during the emission modulation, resulting in a higher production yield and [a]higher energy efficiency. An array of emitters with a density as high as $10^8/cm^2$ will produce a more homogeneous emission compared to those of low emitter density.

Please amend paragraph [0069] as follows:

FIG. 4 shows an alternative way of fabricating the self-aligned gate aperture in accordance with the current invention. Repeating the steps described above until the deposition of the gate metal as is shown in FIG. 4A. Here the gate metal does not have to be thinner than the conformal insulator layer and it does not have to be deposited by a line-of-sight process [n]either. When a CMP is then applied to remove the posts 56 and stop at the gate metal on the floor surface, an aligned gate aperture around each of the CNTs automatically forms. A slight etch back of the gate insulator is then applied, forming aligned apertures in the insulator to further expose the protruding portion of the CNTs in the emitter layer for emitting electrons, as is shown in FIG. 4B.

Please amend paragraph [0072] as follows:

FIG. 6 shows a pattern of catalyst dots 50 formed from a deposition through an ion-track-etched membrane. A membrane with a pore density of $10^8/cm^2$ will result in an array of CNT with an average spacing of one micrometer between them, which is sufficiently ample for a gated structure that the diameter of the aperture is only a small fraction of it. There is a wide selection range for these track-etched membranes. Depending on applications, one could choose a membrane with a pore density anywhere between $10^5/cm^2$ and $5x10^8/cm^2$, giving rise to an average spacing between 50 micrometers to 500 nm. As for pore size, only those with pores less than 300 nm should be used since a catalyst dot size larger than 300 nm will result in multiple CNT growth. The most common track-etched membranes are those of polycarbonate or polyester. To eliminate the outgasing of these plastics in a vacuum deposition chamber, one could use a membrane from other materials such as Cu or Al thin films. Using the track etched plastic membrane as an etch mask, one can easily transfer the pores size and distribution from the plastic film to that of other materials.